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Municipality/Organization: Town of Carver

EPA NPDES Permit Number: MAR041099

MaDEP Transmittal Number: W-050154

Annual Report Number & Reporting Period: No. 3: March 2005-March 2006

NPDES PII Small MS4 General Permit Annual Report

Part I. General Information

Contact Person: William Halunen Title: DPW Superintendent

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Certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: Francis P. Muscato

Printed Name: Francis P. Muscato

Title: Chairman - Board of Selectmen

Date: July 5, 2006

Part II. Self-Assessment

Part III. Summary of Minimum Control Measures

1. Public Education and Outreach

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 3 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 4
PE-1	Flyer Distribution	DPW	Once per year at Hazardous Waste Day	Hazardous Waste Day was held on May 7, 2005. The program included disposal opportunities for electronic equipment. These programs were sponsored through the Carver, Marion, Wareham Regional Refuse Disposal District (CMWRRDD)	CMWRRDD will continue to inform residents of opportunities to dispose of household hazardous wastes. Hazardous Waste Day scheduled for May 2006
Revised					
PE-2	Informational Mailings	DPW	Houses adjacent to outfalls	Program continued	Program continued
Revised			I per year to all houses adjacent to outfalls		
PE-3	Community Group Meetings	DPW	1 Meeting per year		
Revised					
PE-4	Public Service Announcements	DPW	Cable Access Ads for Events	Program continued	Program continued
Revised					
PE-5	Information Distribution	DPW	Posts on Town website	Mailings are sent to all members of the CMWRRDD announcing the schedule for Household Hazardous Waste Collection Days. The Carver Board of Health designed a brochure describing wetland values and functions. This brochure is available at www.buzzardsbay.org and at the Town Hall offices.	Mailings will continue. Board of Health will continue their program of disseminating information about wetlands and open space.
Revised			Minimum of one post per year on town website.		

1a. Additions

2. Public Involvement and Participation

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 3 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 4
PP-1	Storm Drain Stenciling	DPW	All storm drains in areas of concern	No action.	Carver will work with local youth groups, including Scouts, to identify opportunities.
Revised			All storm drains by end of Year 3		
PP-2	Hazardous Waste Day	DPW	Annually	May 7, 2005 (See PE-1) Students in the District prepared posters and announcements.	Scheduled for May 2006
Revised		Working with BOH			
PP-3	Volunteer Monitoring Efforts	DPW	Annually	Residents, especially the cranberry farmers, are quick to report problems in the storm sewer system. DPW responds immediately.	DPW will continue to respond to residents' concerns.
Revised					
PP-4	SWMP Volunteer Review	DPW	Annually	No action.	The Town of Carver will identify opportunity to present Carver's stormwater management program at a workshop for relevant department heads and employees.
Revised					

2a. Additions

3. Illicit Discharge Detection and Elimination

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 3 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 4
ID-1	Visual Inspection	DPW	All outfalls quarterly	All outfalls are continuously monitored by DPW staff. All outfalls were monitored quarterly on average. Outfalls in problem areas were monitored more frequently. Board of Health has a pond testing program to ensure safe waters for swimming.	DPW staff will continue to routinely monitor outfalls. The Board of Health will continue to monitor water quality in the ponds.
Revised					
ID-2	Laboratory Analysis	DPW	When pollution is evident	Problem at local gas station identified in Permit Year 1 has resulted in the site being assigned a DEP tracking number: RTN 4-17825. Ongoing monitoring is required at this site. No new problem outfalls were identified.	Monitoring will continue at gas station. If DPW staff suspects pollutants in outfalls (see ID-1) sampling and additional monitoring will be performed.
Revised					
ID-3	Identify and Map all outfalls	DPW	Map and ID all outfalls in the UA.	All outfalls in UA have been mapped in Year 1.	Carver will maintain and update maps when appropriate.
Revised					
ID-4	Remove source of contaminant	DPW	When pollution is evident	Remediation efforts are underway at gas station.	Town will continue to make attempts to identify and remove source when pollution is confirmed in outfalls.
Revised					
ID-5	Develop and enact by-law	DPW	By end of year 2	No Action	Town will review recommended by-law and prepare language for town meeting action.
Revised					

3a. Additions

4. Construction Site Stormwater Runoff Control

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 3 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 4
CS-1	Develop By-laws	DPW	By end of Year 2 have by-law in place	No action In Year 1Town reviewed existing mechanisms and determined them to provide adequate authority to regulate construction site erosion and post-construction stormwater management	Town will continue to review applicability of by-laws
Revised	*Review Current By-law Develop New By-law if necessary*		Review annually, make amendments as needed		
CS-2	Pre-Construction Information Meetings	DPW	1 meeting per construction after by-law implementation	Order of Conditions is issued by the Conservation Commission of the Town for any construction project within 100 feet of a wetland of any size. Order of Construction Conditions issued by Planning Department to the contractor.	Continuation of previous permit year activities.
Revised	*Provide Pre-Construction Information*	Conservation Commission and Planning Department	1 Letter each Conservation Commission and/or Planning Department outlining conditions of construction activities.		

4a. Additions

CS-3	Site Inspections	Conservation Commission and/or Planning Department	Minimum 1 site visit per construction activity.	Surprise inspection of construction activities conducted by Conservation Commission and the town engineer to ensure construction conditions are being met.	Town will continue to perform surprise inspections.

5. Post-Construction Stormwater Management in New Development and Redevelopment

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 3 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 4
PC-1	Visual Monitoring	DPW	1 visit following completion of project.	Conservation Commission, DPW and Planning Department conduct inspections post construction. A certificate of compliance is issued by the Conservation Commission upon completion of construction in accordance with the OOC on projects they are involved in.	Carver will continue activities described in Year 3.
Revised		Conservation Commission and Planning Department as necessary.			
PC-2	Post-construction By-law	DPW	By end of Year 2 have by-law in place.	Town reviewed existing mechanisms and determined them to provide adequate authority to regulate construction site erosion and post-construction stormwater management	Review by-laws annually for compliance to NPDES permit.
Revised					

5a. Additions

6. Pollution Prevention and Good Housekeeping in Municipal Operations

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 3 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 4
GH-1	Employee Training	DPW	Annually	Training was conducted for the DPW in accordance with Carver's Incidence Plan in coordination with Police and Fire.	Carver will continue to identify opportunities for employee education and training relating to protection of water quality.
Revised					
GH-2	Operations and Maintenance Schedule	DPW	Complete by end of Year 1	Completed in Year 1. Town continues to adhere to schedule.	Town will continue to adhere to schedule.
Revised					
GH-3	Operations and Maintenance Implementation	DPW	Follow Schedule Years 2 through 5.	DPW adheres to schedule (see GH-1)	DPW will continue to adhere to schedule.
Revised					
GH-4		DPW	For each GH BMP employed	Records of educational attendance and vehicle maintenance are kept.	Carver will continue to maintain records
Revised					
Revised					
Revised					

6a. Additions

GH-5	Proper Storage of Materials	DPW	All materials labeled and in suitable containers	All materials are stored in a manner so as not to be exposed to stormwater.	DPW will continue to store materials in a manner that reduces or eliminates threats to water quality from stormwater.

GH-6	Catch Basin Cleanout	DPW	Regular maintenance and cleanout of catchbasins	Carver DPW annually cleanouts out catchbasins with town-owned equipment. Cleanout logs are maintained. Problems are noted and followed-up on.	Carver DPW will continue to cleanout and maintain catchbasins and update maintenance logs.
GH-7	Storm Sewer Maintenance and Improvements	DPW	Improvements to storm sewer infrastructure	The DPW repaired or replaced storm sewer structures on Tremont Street and Fuller Street as part of roadway improvements projects.	The DPW will continue to identify opportunities for drainage improvements associated with road work.

7. BMPs for Meeting Total Maximum Daily Load (TMDL) Waste Load Allocations (WLA) *<<if applicable>>*

There are no TMDLs in Carver

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 3 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 4
Revised					
Revised					
Revised					
Revised					
Revised					
Revised					

7a. Additions

7b. WLA Assessment

Part IV. Summary of Information Collected and Analyzed

Part V. Program Outputs & Accomplishments (OPTIONAL)

Programmatic

Stormwater management position created/staffed	(y/n)	
Annual program budget/expenditures	($)	

Education, Involvement, and Training

Estimated number of residents reached by education program(s)	(# or %)	
Stormwater management committee established	(y/n)	
Stream teams established or supported	(# or y/n)	
Shoreline clean-up participation or quantity of shoreline miles cleaned	(y/n or mi.)	
Household Hazardous Waste Collection Days		
▪ days sponsored	(#)	
▪ community participation	(%)	
▪ material collected	(tons or gal)	
School curricula implemented	(y/n)	

Legal/Regulatory

	In Place Prior to Phase II	Under Review	Drafted	Adopted
Regulatory Mechanism Status (indicate with "X")				
▪ Illicit Discharge Detection & Elimination				
▪ Erosion & Sediment Control				
▪ Post-Development Stormwater Management				
Accompanying Regulation Status (indicate with "X")				
▪ Illicit Discharge Detection & Elimination				
▪ Erosion & Sediment Control				
▪ Post-Development Stormwater Management				

Mapping and Illicit Discharges

Outfall mapping complete	(%)	
Estimated or actual number of outfalls	(#)	
System-Wide mapping complete	(%)	
Mapping method(s)		
▪ Paper/Mylar	(%)	
▪ CADD	(%)	
▪ GIS	(%)	
Outfalls inspected/screened	(# or %)	
Illicit discharges identified	(#)	
Illicit connections removed	(#) (est. gpd)	
% of population on sewer	(%)	
% of population on septic systems	(%)	

Construction

Number of construction starts (>1-acre)	(#)	
Estimated percentage of construction starts adequately regulated for erosion and sediment control	(%)	
Site inspections completed	(# or %)	
Tickets/Stop work orders issued	(# or %)	
Fines collected	(# and $)	
Complaints/concerns received from public	(#)	

Post-Development Stormwater Management

Estimated percentage of development/redevelopment projects adequately regulated for post-construction stormwater control	(%)	
Site inspections completed	(# or %)	
Estimated volume of stormwater recharged	(gpy)	

Operations and Maintenance

Average frequency of catch basin cleaning (non-commercial/non-arterial streets)	(times/yr)	
Average frequency of catch basin cleaning (commercial/arterial or other critical streets)	(times/yr)	
Total number of structures cleaned	(#)	
Storm drain cleaned	(LF or mi.)	
Qty. of screenings/debris removed from storm sewer infrastructure	(lbs. or tons)	
Disposal or use of sweepings (landfill, POTW, compost, recycle for sand, beneficial use, etc.)		
Cost of screenings disposal	($)	

Average frequency of street sweeping (non-commercial/non-arterial streets)	(times/yr)	
Average frequency of street sweeping (commercial/arterial or other critical streets)	(times/yr)	
Qty. of sand/debris collected by sweeping	(lbs. or tons)	
Disposal of sweepings (landfill, POTW, compost, beneficial use, etc.)	(location)	
Cost of sweepings disposal	($)	
Vacuum street sweepers purchased/leased	(#)	
Vacuum street sweepers specified in contracts	(y/n)	

Reduction in application on public land of: ("N/A" = never used; "100%" = elimination)		
▪ Fertilizers	(lbs. or %)	
▪ Herbicides	(lbs. or %)	
▪ Pesticides	(lbs. or %)	

Anti-/De-Icing products and ratios	% NaCl % $CaCl_2$ % $MgCl_2$ % CMA % Kac % KCl % Sand	
Pre-wetting techniques utilized	(y/n)	
Manual control spreaders used	(y/n)	
Automatic or Zero-velocity spreaders used	(y/n)	
Estimated net reduction in typical year salt application	(lbs. or %)	
Salt pile(s) covered in storage shed(s)	(y/n)	
Storage shed(s) in design or under construction	(y/n)	

Carver Board of Health

Regulations for Storm Water and Runoff Management

CARVER BOARD OF HEALTH

Regulations for Storm Water and Runoff Management

PURPOSE

The goal of the Carver Stormwater Management Regulation is to improve water quality and address water quantity problems by the implementation of performance standards for stormwater management. Urban runoff and discharges from strormwater outfalls are the single largest source responsible for water quality problems in the Commonwealth's rivers, lakes, ponds, and marine waters. The Massachusetts Department of Environmental Protection Stormwater Management Standards establishes clear and consistent guidelines for stormwater management in Massachusetts. The Standards are designed for use under multiple statutory and regulatory authorities of the Department of Environmental Protection, including the Wetlands Protection Act, as amended by the Rivers Protection Act, and the Clean Water Act.

Stormwater discharges occur as rainfall and snowmelt carry pollutants to surface and groundwater. New and existing development increases impervious surfaces, which alters natural drainage features, increases peak discharge rates and volumes, and reduces recharge to maintain wetlands and base flows in streams. Development also results in corresponding increases in the concentration and types of pollutant loadings, including thermal impacts to streams, nutrient, solids, metals, salt, pathogens, pesticides, and hydrocarbons. Best Management Practices (BMPs) reduce or prevent pollutants from reaching water bodies and control the quantity of runoff from a site. The Stormwater Management Standards address both water quality (pollutants) and water quantity (flood control) problems by establishing the level of required controls through the use of BMPs.

The Carver Stormwater Management Regulations are intended to be applied during routine project review by issuing authorities. Use of standards should prevent or minimize adverse environmental impacts due to unmanaged stormwater while limiting undue costs and recognizing site constraints. These regulations for stormwater management are intended to protect the public and environmental health by providing adequate protection against pollutants, flooding, siltation, and other drainage problems.

REGULATION

I. The storm water management design shall include a control strategy and plan for Source Control and Best Management Practice (BMP) for any particular development or project and shall accomplish the following goals:
   A. Reproduce, as nearly as possible, the hydrological conditions in the ground and surface waters prior to a development.
   B. Reduce storm water pollution to the "Maximum Extent Practicable" (MEP) using Best Management Practices (BMPs).
   C. Have an acceptable future maintenance burden as determined by the Town of Carver Department of Public Works for roadways to be accepted as Town Ways.
   D. Have an acceptable operation and management plan for all private development.
   E. Have a neutral effect on the natural and human environment.
   F. Be appropriate for the site, given physical restraints.
   G. Provide a sufficient level of health and environmental protection during the construction phase.

II. An acceptable storm water management plan shall:
   A. Capture and treat the "First Flush" of a storm, usually the runoff from the first one inch of precipitation for the total impervious area of the development site or a value as may be designated by the Carver Board of Health.
   B. Not cause an increase or decrease in either the total volume of runoff discharged offsite, or total rate of runoff discharged offsite, as compared with the respective discharge offsite prior to the development. Such condition shall be required for storms of 1, 10, 25, 50 and 100-year frequency events.
   C. Include source controls and design of BMPs and Infiltration and Detention structures in accordance with the procedures acceptable to the Carver Board of Health such as required in the following publications and regulations:
      a. Department of Environmental Protection, Surface Water Discharge Permit Program; 314 CMR 3.00
      b. Department of Environmental Protection, Wetland Protection Act Regulations; 310 CMR 10.00
      c. Department of Environmental Protection, Stormwater Regulations; 314 CMR 5.0
      d. Department of Environmental Protection, Groundwater Discharge; 314 CMR 5.0
      e. Department of Environmental Protection, Groundwater Quality Standards; 314 CMR 5.0
      f. Department of Environmental Protection, Water Quality Certification; 314 CMR 5.0 (401)

g. Department of Environmental Protection, Rivers Protection Act Regulations; 310 CMR 10.00
h. Department of Environmental Protection, Dam Safety; 302 CMR 10.0
i. United States Environmental Protection Agency, Clean Water Act; National Pollutant Discharge Elimination System (NPDES), Stormwater Phase 1 Rule (55 FR 47990) for MS4s
j. United States Environmental Protection Agency, Clean Water Act; National Pollutant Discharge Elimination System (NPDES), Stormwater Phase 2 Draft for MS4s

D. In cases where runoff infiltration cannot, in the opinion of the Carver Board of Health, be appropriately implemented because of the possibility of contamination of water supply, or because of extremely poor infiltration and permeability characteristics of the soil, the requirement as regards volume may be waived by the Carver Board of Health provided the applicant provides such additional preventive measures to prevent any increase in elevation or duration of downstream flood elevations. Such additional measures may be, but are not restricted to, the construction of compensatory flood storage facilities and/or the creation of additional wetlands.
Poor infiltrative and permeability conditions are defined as Hydrologic Soil Group "D" as published by the USDA NRCS Soil Service and may be confirmed by "insitu" permeability testing resulting in a permeability of less than 1 x 10 (-4) centimeters per second. Unless, in the opinion of the Carver Board of Health, such testing is not applicable for a particular site, all permeability tests shall be in site field bore hole tests for permeabilities in the acceptable range as specified above. If permeability testing is desired to be performed in soils of lesser permeability, laboratory tests for hydraulic conductivity shall be performed on undisturbed samples by the Falling Head Permeability using flexible membrane triaxial test cells with backpressure (Army Corps of Engineering Manual EM 1110-2-1906 Appendix VII).

E. If detention or retention ponds are utilized, slopes shall be no steeper than four horizontal to one vertical. Maximum design water depth shall not exceed three (3) feet except in permanent ponds. Minimum bottom slope for "wet and dry" detention areas shall be two (2) percent, and infiltration ponds shall be graded flat. A safety bench, a minimum of ten (10) feet wide shall be provided. Detention or retention areas shall not be constructed within existing steam bed or wetland areas.

F. Not result in channelization of surface runoff offsite without the written consent of the owner of the land affected, in the form of a permanent grant of easement, recorded at the Registry of Deeds.

G. Include all hydrologic and hydraulic calculations and data to support the proposed design for the stormwater runoff drainage system. Both volume and flow rate of runoff before and after proposed development must be clearly stated and shall be in accordance with the specifications previously designated herein. Calculations shall be performed based on the most recent Atlas of Precipitation published by Cornell University (attached) as well as the most recent procedures of the U.S.D.A. Soil Conservation Service such as are described in the National Engineering Handbook - Section 4 - Hydrology (SCS 1985), TR - 20 "Computer Program of Project Formulation Hydrology" (SCS 1983), and Technical Release No. #55 "Urban Hydrology for Small Watersheds" (SCS 1986). Additional design guidelines may be on file With the Carver Board of Health.

H. The Carver Board of Health reserves its rights to grant variances to the above requirements should they deem the variances to be in the best interest of public health and safety.

III. The Carver Board of Health, Commonwealth of Massachusetts acting in accordance with Chapter 111, Section 31 of the Massachusetts General Laws and amendments and additions thereto, and by any other power thereto enabling, and acting thereunder have adopted STORMWATER AND RUNOFF MANAGEMENT REGULATIONS for the preservation of public and environmental health.

A. Voted on:
B. Effective on:

STORMWATER GUIDANCE ATTACHMENT

24 HOUR RAINFALL

This Atlas of Precipitation has been published by the Northeast Regional Climate Center at Cornell University. It provides accurate data for the 24 hour Rainfall and precipitation of storm events. This atlas should be used to calculate the 24 hour Rainfall, as it is scientifically sound and up to date. Otherwise, structures for stormwater infiltration, retention, detention, and other BMP's may be incorrectly and /or undersized for real storm events.

This Atlas:

1. Utilizes the advances in statistics methodology and computing power since 1961.
2. Provides results determined from data of stations having an average length of record of 51.3 years as compared to the data of TP-40, which had an average length of record of 22.6 years.
3. Recognizes that the frequency of heavy rain events has increased since 1961. TP-40 encompasses a relatively dry period compared to the past 40 years.
4. Provides empirical adjustment factors to transform precipitation amounts pertaining to calendar day observations to maximum precipitation regardless of time of observation.

Analysis of the 1993 Northeast Regional Climate Center Atlas for Plymouth County, corrected for the 24-Hour Storm, result in the following rainfall values.

24-Hour Storm	Rainfall (inches)
1	2.82
2	3.39
5	4.24
10	5.08
25	6.22
50	7.34
100	9.04

The title of this atlas is *Atlas of Precipitation Extremes for the Northeastern United States and Southeastern Canada*, Cornell University, Ithaca, New York, Publication No. RR 93-5, September 1993. A second publication entitled *Atlas of Short-Duration Precipitation Extremes for the Northeastern United States and Southwestern Canada*, Publication No. RR 95-1, March 1995, is also available

Stormwater Management Standard
Applicability

Applicability

The Stormwater Management Standards apply to industrial, commercial, institutional, residential subdivisions, multi-family residential projects, and roadway projects, including site preparation, construction, redevelopment, and on-going operations.

The Stormwater Management Standards do not apply to ([1])

(1) Single-family house project;
(2) Emergency repairs to roads or their drainage systems.
(3) Redevelopment of Existing Properties

The Stormwater Management Standards do apply to the extent practicable to:

(1) Residential subdivisions with four or fewer lots with a discharge potentially affecting a critical area; and
(2) Five to nine residential lots, provided any discharge will not affect a critical area.

The Stormwater Management Standards do apply to:

(1) Five to nine residential lot residential subdivisions with discharges potentially affecting critical areas and any subdivision of 10 or more lots, as well as all commercial and industrial developments. Residential development that is a part of a phased development project does not qualify for an exemption.
These thresholds do not preclude these activities from meeting applicable state regulatory requirements not directly related to the stormwater discharge.

Table: Stormwater Management Standards Applicability for Subdivision Projects

Project Type	Not Affecting Critical Areas	Affecting Critical Areas
Single Family House	Not Subject to Standards	Not Subject to Standards *
2-4 Lot Subdivision	Subject to the Extent Practicable	Subject to the Extent Practicable
5-9 Lot Subdivision	Subject to the Extent Practicable	Must Meet the Standards
> 10 Lot Subdivision	Must Meet the Standards	Must Meet the Standards

*****Where Critical Areas are: Outstanding Resource Waters, Public Swimming Beaches, Cold Water Fisheries, and Recharge Areas for Public Water Supplies.*****

[1] For projects of any size, direct discharges of untreated stormwater from pipes to wetlands or waters are not allowed. Erosion and sedimentation controls during construction must be provided for all land disturbances in excess of 5,000 square feet.

Carver Master Plan – Executive Summary
Growth Management Plan

EXECUTIVE SUMMARY : A FIVE PART PLAN FOR CARVER

Protecting our town character while responding to the challenge of growth

The town of Carver is at a crossroad. According to most predictions, the population of Carver will increase by 50% over the next 20 years, and the population of the town could eventually reach 34,000 or even higher. Whether this growth takes a positive shape or degrades the quality of life in Carver depends largely on decisions that will be made in the next five years.

The urgency of our situation is brought on by two factors: regional growth pressure, and the downturn in the cranberry industry. Southeastern Massachusetts is the fastest growing area of the state, and the pressures are only expected to increase. In Carver, the cranberry industry has provided a significant buffer against these forces of growth by keeping thousands of acres of land out of development. In so doing, it has suppressed the rate of population growth, helped to stabilize the town's finances, and protected the environment. Now that many growers are being forced to sell their developable land in order to survive, a sudden surge in the growth of our town seems inevitable.

Sprawl growth

It is time to make choices about the shape this growth will take. On the one hand, we can allow the sprawling development patterns of the recent past to continue. This approach, which could be called "letting nature take its course," would be devastating to the quality of life in Carver in the long term. Under this scenario, low-density strip-style commercial development would continue along the main roads. Numerous new residential subdivisions of mid-priced single-family homes on acre and a half lots would gradually gobble up most of the buildable open land. All of these homes would cost several thousand dollars more in services each year than they pay in taxes, so their impact on the town's budget would be severe. This dispersed growth would also seriously stress the natural environment, as large tracts of woodland are replaced by streets, houses, and lawns. Our precious groundwater could easily be compromised, to the detriment of the residents and the cranberry industry.

Smart Growth

The alternative to the sprawl scenario is for the town to actively pursue some of the goals of the smart-growth movement. As it has been promoted in the last decade or so, smart growth planning seeks to direct development to areas where infrastructure already exists, creating compact, walkable mixed-use areas, much like the traditional village centers of the past. Within these VILLAGE AREAS, a variety of housing types is encouraged, including townhouses, apartments, and small-lot homes.

Outside these higher-density village cores, growth is limited and open space and agricultural lands are preserved within RURAL AREAS. The clustering of new housing is encouraged so that open space can be set aside and septic treated collectively. In the most remote and sensitive areas, large areas of open space are protected, and buffers around important natural resources carefully maintained.

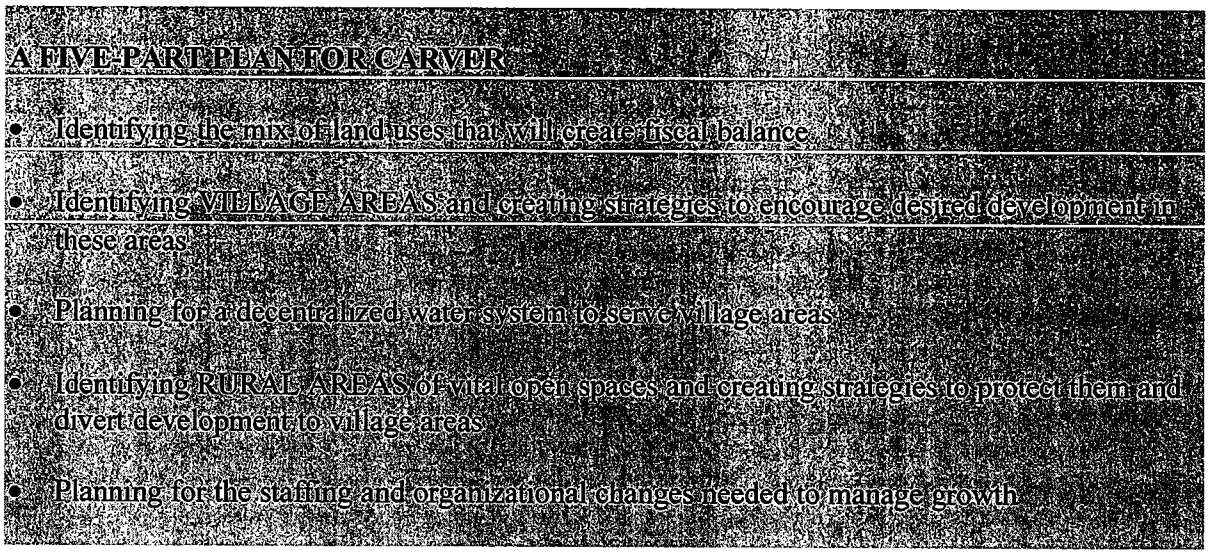
The smart-growth approach has a number of benefits to a community. The dense, village-like areas foster a sense of vitality and identity, and create economic opportunity. A wider variety of housing options meets the needs of residents of all ages and incomes more effectively. The mix of uses promotes fiscal stability for the town. Environmentally sensitive areas are protected and large areas of open space are preserved for recreation and beauty.

These community benefits of smart growth are very much in line with the goals which the Master Plan Committee has outlined for Carver. These goals fall into three key areas:

Three key goals for Carver:

- Preservation and enhancement of community character
- Environmental protection
- Fiscal balance

The Master Plan outlines a smart growth plan that can work in our own community. Many of these ideas are not new in Carver – in fact, much of the groundwork was laid in 1998, when we revised our zoning bylaws to include such innovations as village zoning and cluster development. But we need to build on these accomplishments in order to realize a true village-centered vision. The plan encompasses five broad steps:



The right mix of development for fiscal balance

As we stated earlier, a town cannot expect to remain solvent when the vast majority of development consists of mid-range homes with children in the public schools. We have calculated that the average house in Carver today, with an assessed value of $140,000, costs the town $3,366 per year over and above what is paid in taxes. In fact most homes valued at less than $340,000 (which constitute over 95% of the homes in Carver) create a deficit. Carver has escaped the full impact of this deficit in recent years because of two factors: a split tax rate which has partially closed the gap by shifting a larger burden onto commercial property owners, and a big inflow of equity aid from the state. But neither of these factors can be relied upon to continue.

The solution that has been advanced in the past to counter-balance this deficit has been to promote commercial and industrial development. This is a worthwhile objective, and various strategies for encouraging economic development are taken up in the Master Plan. But the reality is that commercial and industrial development alone are not the answer. Given the location of Carver, it is unlikely that our town will ever have enough economic development to offset the residential development that is coming, or that we would like the community that would result even if it were possible.

The Master Plan proposes a broader mix of residential uses as a more viable way to maintain financial health as we grow. This mix would contain not just mid-priced single-family housing, but also a significant percentage of the types of housing that are revenue-positive, such as townhouses, age-restricted housing, and higher-priced homes. While there are many formulas that could achieve fiscal balance, we have suggested the following percentages as an attainable goal:

Housing type	Average value	Mix %
SF moderate	$230,000	10
SF middle	$275,000	35
SF high	$375,000	35
SF great estates	$500,000	10
Townhouses	$210,000	10

Assumptions:

- Break-even valuation for SF house with children: $340,000
- Break-even for 2-br townhouse w/o children: $67,000
- Great estates = 5+ acre lot

In the Housing section of the Master Plan, we give more detail about the likely financial impact of each of these housing types, as well as an overview of the market forces at work in Southeastern Massachusetts that suggests that this mix is feasible.

The benefits to expanding our range of housing types go beyond simply achieving fiscal balance. By offering more variety, we provide more options for the people who live in the community. Currently, a young couple, single person, or retired couple looking for an apartment or condo cannot find one in Carver, and the family hoping to upgrade to a nicer home without moving out of the community has very few choices. We also will draw *new* people to the community who would not currently consider settling here. Carver would benefit from attracting a certain percentage of more affluent homebuyers. The low-to moderate income demographics of the town, (including lower education levels than most surrounding towns), are often reflected in low

levels of citizen participation in town government and lack of support for local businesses. Carver will never be affluent, but a greater demographic range would bring needed resources into town.

And what about affordable housing? Compared to many nearby towns, Carver is already quite affordable. And fully a third of our housing units are mobile homes, which provide a very affordable option to seniors. This existing housing stock will continue to provide a solid base of affordably-priced homes even as the cost of new construction continues to rise. In addition, our smart-growth plan includes some apartments, townhouses and other moderately priced housing.

For families and the elderly who are unable to afford even these options, M.G.L. 40B has required that10% of the housing in every Massachusetts town be subsidized. Although we could argue that this standard is excessive, because it disregards our huge stock of mobile homes and converted cottages, it is clear that a need exists. But the town's efforts to meet that need must rest on the foundation of fiscal stability. A town with a healthy mix of market-rate housing is most able to provide for the needy.

Village Areas

As we have said earlier, the fundamental principle of smart growth planning is to increase density in areas where infrastructure exists and to reduce density where open space and natural resources exist, rather than let development sprawl evenly all over the landscape.

The Master Plan, proposes several Village Areas including the existing historic village centers and some adjacent lands with potential for development:

- *North Carver:* includes Route 44 Study area and North Carver Green
- *Center Carver*: includes village and general business areas adjacent to Town Hall
- *South Carver*: includes historic village area
- *Future development*: includes the Makepeace lands

Of the four, Center Carver has the greatest potential for developing a lively mixed-use village – a true town center. The area would improve with the addition of quite a bit of compact housing, and some commercial infill to give the area more of the feeling of a town and less of a strip. Apartments on the second floor of commercial buildings would increase housing options. And finally, the area needs to be unified with generous sidewalks, attractive lighting and other streetscape improvements. The Master Plan suggests some new design guidelines that would help this vision of a town center become a reality.

The North and South Carver village areas can also accommodate a modest amount of new housing and commercial development, as long as it is sensitive to the historic character of the areas. South Carver Village should be given Historic District status to help protect it as it grows. This will be especially important since South Carver will serve as the gateway to the Makepeace development and will be under considerable pressure from the additional traffic. North Carver includes the Route 44 study area, where several parcels with development potential have been identified.

Besides these three traditional areas, it is likely that other sites for higher-density development will emerge as large chunks of land come on the market, such as the proposed Makepeace project. We hope that the Makepeace project will serve as a model for evaluating and shaping other such proposed developments.

To encourage the appropriate mix of development in these HD areas, we are proposing a number of strategies, such as reducing lot sizes and setbacks and encouraging townhouses, which are outlined on page 7.

Creation of a decentralized water system

Development of town water lies at the heart of any village-centered planning. Without some kind of public water system, compact village areas are very difficult to achieve because of the wide separation required between wells and septic systems. A *town-wide* water system is neither necessary nor economically feasible. The cost of such a system would be prohibitive because of the total length of roadway relative to future density. In addition, it appears that our current system of private wells meets the needs of most residents, and should continue to be sufficient as long as the aquifer is protected.

However, a *decentralized* system is both feasible and desirable. This decentralized system would have three distinct water districts taking water from three different sources and delivering it to strictly defined high-density areas adjacent to those sources. (See Map 1.)

- *North Carver*: piping from Middleboro
- *Center Carver*: served by the Town Hall well (land acquisition is necessary to expand the well buffer zone and increase output)
- *South Carver*: served by the Cranberry Village well (land acquisition also necessary.)

In South Carver, the municipal wells at Cranberry Village would be developed to serve not only the village area, but also the new project proposed by Makepeace, and to possibly provide a revenue source by supplying the water deficient areas in South Middleboro. Outside the strictly defined Village Areas, residents would continue to use private wells (or small community systems such as the well in South Meadow Village), unless there is a problem such as contamination.

A word about sewerage: at this time it does not seem feasible that the town will ever have a town-wide sewer system, for the same reason that it won't have a town-wide water system. However, in order to promote more compact development in certain Village Areas, the town should encourage small private treatment systems. Standards need to be defined for these systems so that they don't become a problem for the town or its citizens.

Rural Open Space Areas

Promoting village areas in a rural community only makes sense when paired with the other half of the equation – the reduction of the final buildout density in priority open space areas. Map 2 shows a broad-brush scheme for identifying the most vital open space lands in Carver. It is our goal that when property within these areas comes out of agricultural use, the land is either:

- permanently protected in its entirety
- developed into oversized lots (defined as lots of 3 acres or more), or
- developed in a cluster pattern that groups the houses compactly on the land, leaving the balance of the land protected and allowing construction to stay well away from resource areas like wetlands.

In the Master Plan we recommend a number of strategies to help attain this goal. These strategies, which are outlined on page 7, include increasing lot sizes and frontage, revising the cluster bylaw to provide more incentives for clustering, and protecting up to 4,500 acres of key open space through acquisition or conservation restriction.

Staffing and Organization

On page 8 are outlined a number of facilities and services that will be necessary to make this vision a reality. First and foremost, there is a need for a staff planner. Many of the strategies outlined in this report require more study. And even when the whole plan is implemented, a much more sophisticated level of review will be required than has been needed under our current system. This kind of flexible response is beyond the expertise of most volunteer boards without professional guidance.

Summary

Carver's greatest assets are its open space and its small-town character. With the wave of growth coming to Southeastern Massachusetts, these assets could easily be lost to sprawl. Encouraging compact mixed-use village centers while steering development away from open space areas is a viable way to prevent this erosion of our unique character.

The strategies outlined in this report would also reduce the final build-out population of Carver by about 25%. The increase in lot size alone would decrease the ultimate population by 5,600 people or 2,050 housing units, while the protection of land via acquisition or conservation restrictions would further reduce the buildout by 3,000 residents or 1,200 units. This would be beneficial to our environment, our quality of life, and our fiscal health.

ACTIONS FOR IMPLEMENTING FIVE-PART PLAN

Village Areas

Zoning

- Map boundaries of Village Areas by examining current land-uses and identifying parcels with potential for additional development
- Allow smaller residential lots within Village Areas where water system is in place
- Allow apartments over stores (in accordance with performance standards)
- Refine list of allowed commercial uses
- Allow townhouses on smaller lots in Village Areas

Design Standards

- Adopt maximum front setback to bring buildings closer to street
- Decrease side lot setbacks to bring buildings closer together
- Promote streetscape improvements such as better sidewalks, street trees, lighting
- Encourage infill of existing low-density strip-style development

Health and Environmental Standards

- Adopt water and septic management regulations for Village Areas

Organizational

- Create public/private task force including new EDIC to seek additional funding for planning, streetscape improvements and infrastructure development within Village Areas

Decentralized Water System

- Create Water/Stormwater/Wastewater Planning Committee
- Seek funding for water/stormwater planning through DEP Comprehensive Water Resources Management Plan
- Obtain support of Buzzards Bay Project to assist in stormwater planning
- Undertake hydrologic studies of target areas
- Negotiate connections to Middleborough to supply water to Rt. 44 area
- Acquire bogs adjacent to Town Hall and South Carver wells to allow expansion of pumping capacity
- Obtain funding for system development

Rural Areas

Zoning and Planning Board Regulations

- Increase lot sizes to two acres and frontage to 200 ft. in order to reduce overall development and protect resources
- Revise cluster bylaw to provide more incentives for clustering, including as-of-right clustering, and density bonuses for certain public benefits
- Adopt new road standards to allow for a reduction of width, etc. for smaller subdivisions
- Adopt site-plan review for large residential developments

Additional strategies to protect natural resources

- Adopt stormwater protection standards
- Update Aquifer Protection Bylaw
- Update Wetlands Bylaw: mapping and resource area protection
- Adopt Flood Hazard District zoning
- Establish a land bank to accept donations and hold protected lands
- Enact Community Preservation Act to create a source of funding for open space protection
- Develop a system for transferring development rights away from most sensitive areas towards areas more suitable for development (TDR)
- Acquire land or development rights to @ 4,500 acres of critical open space, including a 3,000 acre greenbelt linking Rocky Gutter in Middleboro to Miles Standish State Forest via the Edaville site.

Staffing and Organizational Changes

- Retain economic development/planner
- Re-organize EDIC
- Adopt Economic Opportunity Area Designation (with Plymouth)
- Complete 2-year Housing Program (Executive Order 418)
- Institute inter-board review process for major projects
- Complete GIS data base and acquire GIS mapping and analysis capability

Vision for the Town of Carver

The Action Plan diagram locates the Village Areas where infrastructure improvements including public water, road, and new development will be encouraged as well as the Rural Areas where there will be an effort at land preservation and the encouragement of cluster housing. In pursuit of this Action Plan, the town envisions itself in the year 2020 as having:

VISION STATEMENT

- *A regional system of trails interconnecting major open spaces including Myles Standish, Makepeace, Edaville Railroad, and Rocky Gutter Wildlife Refuge (Middleborough) in order to promote tourism and protect local agriculture;*
- *Higher density, new growth in self-sufficient, mixed use, village areas where water supply and wastewater needs will be fully addressed according to Town standards;*
- *A campus setting for municipal facilities bounded by a revitalized New England town center and an improved Route 58;*
- *Quality schools and public safety;*
- *Staffing of local government to provide the diverse management, regulatory, economic development and environmental protection needs its citizens and businesses requested in order to not be overwhelmed by growth;*
- *The presence of a historic town spirit which increases the involvement of students in local affairs and of its citizens in managing local government.*

Following this Executive Summary are the eight elements which comprise the Master Plan.

Section I: *Land Use,* presents a description of the existing land use , development capacity under existing zoning, a discussion of alternative land use strategies for managing growth, and a series of recommendations.

Sections 2-7 address the different components of the community including *Housing, Economic Development, Open Space, Historic Resources, Public Facilities, and Transportation*. For each of these sections basic inventory information is presented, followed by an analysis of issues and opportunities, the presentation of a Vision and Goal statement, and ending with a series of Recommendations.

Section 8, *Implementation Strategy.* An Action Plan is discussed which identifies by Phase the tasks and responsible party for carrying out the Master Plan.